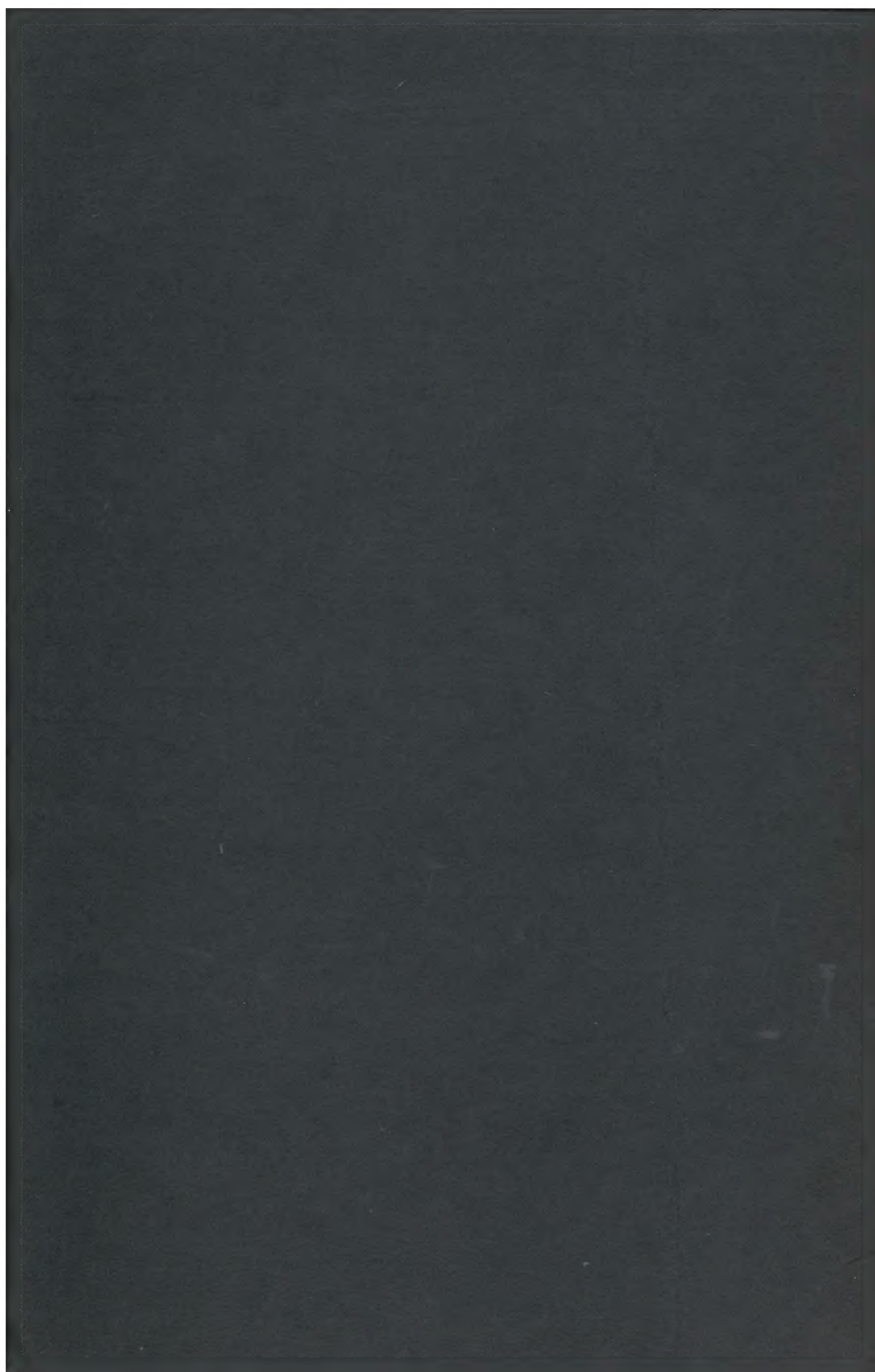


# EDMONTON'S MUNICIPAL UTILITIES



*Electric Light  
and Power  
Power House and  
Pumping Station  
Street Railway  
Telephones  
Waterworks*

1928



not in 2nd

85 -

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*Edmonton's*  
*Municipal Utilities*  
1928



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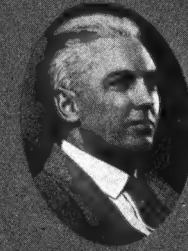
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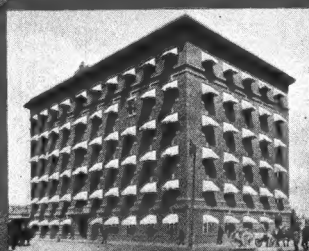
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# The Story of Edmonton's Municipal Utilities

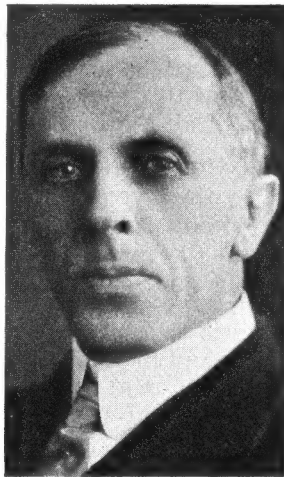
By City Commissioner D. Mitchell.

The story of Edmonton's ownership of its Civic Utilities forms an interesting chapter and is recognized by exponents of municipal ownership as an outstanding example of what can be accomplished by the application of intelligence and business principles in meeting community requirements.

While, therefore, the pros and cons of municipal ownership on many occasions have been a popular subject for academic discussion, the City of Edmonton has for a number of years been giving a practical demonstration in the management of its Public

Utilities with conspicuous success. The progress which this compendium is designed to record, is not only a tribute to the vision of those who in earlier times initiated the policies which made such results possible, but should also serve to stimulate a legitimate pride and faith on the part of the citizens themselves in their own municipal enterprises. It is doubtful whether any urban community elsewhere in Canada can compare in showing such satisfactory results in the operation of the various services rendered by electric light, power, street railway, telephone and waterworks departments, so that it can be said that these utilities, whilst representing a large investment, have not only not cost the citizens one cent, but in reality have made a substantial contribution each year to the civic exchequer. Still further, the tariff charges for these respective services compare favorably with those applied elsewhere, while it may be added there is in immediate prospect a substantial reduction in domestic and commercial lighting rates.

The fact that to-day certain powerful private interests are knocking at the door to be heard in support of their proposals to





undertake the operation of some of these utilities on supposedly advantageous terms, merely goes to prove that they recognize the value of the City's Utilities as a large field of industrial development which, with its promising future, warrants a considerable investment of capital in acquiring these utilities.

For the year 1927 alone a Net Surplus of \$419,837 was returned by the combined Departments as a contribution to the General Revenue Account of the City, and whether considered as taxes or otherwise, the financial aspect remains equally satisfactory, representing in effect to the citizens the equivalent of approximately seven mills.

During the present year, up to 31st August, the Net Surplus has amounted to \$310,038.14. It is significant that the Street Railway Department for the first time in its history will probably show a surplus this year. For the year 1928 it is anticipated the net surplus of all the Departments will aggregate \$480,000.00.

Actually up to 31st August, 1928, the combined Net Surplus produced by the several Utility Departments since their inception (after providing for all capital and depreciation charges) has amounted to the remarkable sum of \$2,828,537.88, as shown by the following summary.

Electric Light Department .....	\$1,593,433.13
Power and Pumping Plant .....	1,186,039.51
Telephone Department .....	948,635.39
Waterworks Department .....	591,431.66
	<hr/>
	\$4,319,639.69
Less Deficit Street Railway Dept. ....	1,491,101.81
	<hr/>
Aggregate Net Surplus to date .....	\$2,828,537.88

In addition to the foregoing surplus the Departments have created reserves amounting to \$1,250,000.00, to provide for additions to plant and new equipment, bringing the total surplus earnings up to over \$4,000,000.00.

A perusal of the various departmental reviews by the respective Superintendents and of the City Comptroller, which follow, will not only prove interesting and informative, but will enable the citizens to appreciate the intrinsic value of their own utilities.

It may be presumed that the citizens will be extremely careful in regard to any proposition involving the alienation of these utilities which have contributed so substantially in a financial way to a solution of the City's problem during a number of years. It is no exaggeration to state that without the returns derived from the operation of the City's utilities, the civic situation, critical as it has been, would have been intensified, and that without these

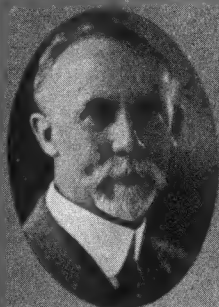
annual returns to relieve the over-burdened taxpayer it would have been practically impossible to carry on the administration owing to the large funded debt responsibilities created in pre-war years.

Not only have the annual profits been substantial, but during the last few years the policy has been adopted of rehabilitation and renewal of plant and equipment of the several utilities out of reserve, also accumulated from the profits, by which means approximately half a million dollars has been expended on improvements and additions to the plant and equipment. In this way it has been possible, for example, to provide for an addition to the South Side Telephone Exchange, and completely equipping same with the latest two-wire system, thus increasing the capacity for service, at a cost of \$165,000.00. At the Power Plant a new Parsons 10,000 K.W. Turbo-Generator has been installed and is now in operation, at a cost of \$215,000.00, thereby effecting reduced costs of operation. At the Pumping Plant also the Sedimentation System, which has been in use for many years, and has been totally inadequate, has now been enlarged by the construction of a large new Sedimentation Basin. In connection with the latter the latest feature is the installation of the Dorr Clarifier, the most modern type of water treatment equipment, and which has ensured to the citizens during the present year for the first time, an uninterrupted clear water supply, notwithstanding the unprecedentedly continued turbidity of the river.

It is interesting to note that the total Net Debenture indebtedness of the City's Utilities now only amounts to \$6,000,000 and owing to the fact that a large percentage of this indebtedness matures within the next few years, the corresponding relief from reduced capital charges should contribute towards still more tangible results than hitherto received. It is more than a possibility that Edmonton, by adhering to the present policy of conservative management of its Utilities, in the very near future will be in a position of affording the public utility services at rates even more favorable than in other urban centres, with an equal standard of efficiency. It should be reflected that Edmonton's financial problem has been most acute, and one difficult to solve, but if the citizens exercise due restraint and caution at this momentous stage of the City's history, the prospects are that even greater future success in connection with the control and management of its Civic Utilities will be assured.

Edmonton, 1st Sept., 1928.

**CITY  
OF  
EDMONTON**



SUPT. J.W. TURNER  
WATERWORKS DEPT.



SUPT. W.J. CUNNINGHAM  
POWER HOUSE,  
PUMPING & FILTRATION  
PLANT,  
STREET RAILWAY DEPTS.



SUPT. R. CHRISTIE  
TELEPHONE DEPT.

**SUPERINTENDENTS  
*of*  
UTILITIES**

**1928**



SUPT. W. BARNHOUSE  
ELECTRIC LIGHT &  
POWER DEPT.



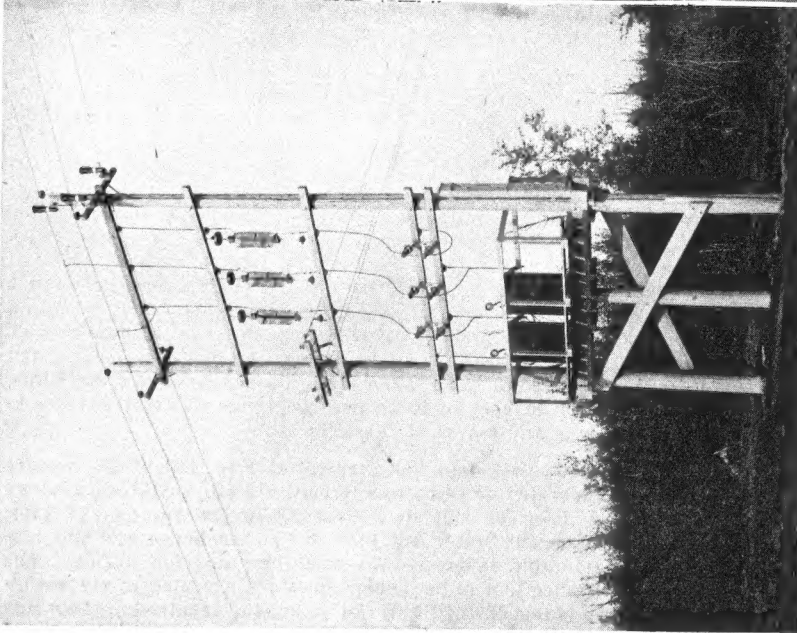
# Electric Light and Power Distribution

By Superintendent W. Barnhouse.

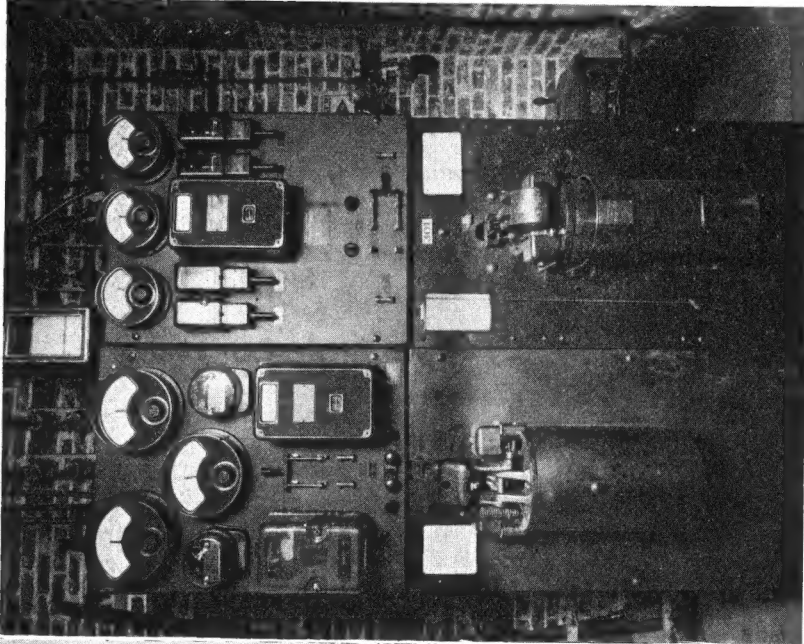
It is just a little over half-a-century since electricity was first adapted to lighting purposes, and during that time in this particular class of utility great progress has been made. Some of our older citizens are able to remember the previous use of oil, gas and also the earlier electric lamps, and to compare the ineffective light given with the wonderful flood lights which today ornament and illuminate our thoroughfares, turning night into day with their brilliancy. Similar comment can be made in regard to domestic and such-like lighting. Living as we do in the centre of an agricultural community, it is with pleasure that one recalls a particular phase of the progress that the years have brought. No longer is there need for the tenants of the most isolated farmhouse to grope about with lanterns, such as necessity compelled previously. Use of electric light and power has been so developed along economic lines, that for a very reasonable expenditure the farmer can have a self-contained unit that will flood his house with light from attic to basement, and also provide illumination for the barns, stables, and even the chicken-pen. And if science and invention has done that much for the isolated farmhouse, how much more can be related in connection with the giant plants that furnish light and power for our big cities.

It was in 1876 that Mr. C. F. Brush first invented and demonstrated the open arc lamp and a generator to produce the current required for the operation of the lamp. In the inception only good-sized units were used and the lighting confined to use in stores and large areas. In 1879 the carbon lamp was invented which gave such a stimulus to the use of electricity, both for commercial and domestic lighting purposes, that its adoption almost immediately became general. History of the use of electricity for these objects commences in Edmonton in 1891. In that year a group of the citizens formed a company under the style of the Edmonton Electric Light Company, and having obtained a ten-year franchise from the municipality, began operations under the management of the late Alex. Taylor. A steam plant was erected on the river bank near the low level bridge, and the necessary wire and poles were taken along Jasper Avenue from Kins-  
tino Avenue (now 96th Street) to 103rd Street, giving electrical service to the principal buildings and stores of the town.

Equipment in use at that date was very inferior to that of the present day, and the plant operated more or less irregularly. It sustained a heavy set-back by the river flooding in the summer of 1899, when the water got into the power house and did considerable damage to the machinery and foundations. The service had to be discontinued for a period of six weeks, while the plant was being cleaned and the generator repaired. After this the plant was operated successfully throughout the remainder of the franchise period. At its end the Town Council decided that if a private company could operate a lighting plant successfully, the municipality could do likewise, and straightway proceeded to take steps to acquire the plant



Outside Structure to Transform 13,200 Voltage to 2,200 Volts for Consumption by Industries.



Automatic Equipment Used to Open Circuits When Special Conditions Arise at Sub-Stations.

and distribution system. The purchase was consummated in May, 1902, the price paid being \$13,500. The town had rather an unfortunate experience at the start, as shortly after the plant was taken over, a broken crank shaft caused the town to be left in darkness. The breakage was occasioned by the flood of 1899 having destroyed the foundations under the engine. As the repairs would take a month or two before completion, and the river bank was low at the spot where the power house was situated, it was deemed advisable to move the whole plant to a better location farther up the river. A new building was erected, the old equipment moved while repair parts were being secured, the pole lines changed and general alterations made to fit in with the new location. This was the beginning of the present power house.

Edmonton at that time was growing very rapidly, and the town council realized that demand would soon be beyond the capacity of the existing generator and that a second unit was necessary; but the system itself then in use was out-of-date, and it was decided to purchase a generator of new design, and producing energy known to the electrical trade as 3-phase current. This change in the power house equipment, together with alterations in the distribution system, naturally called for a considerable expenditure, calculated to press hardly upon a town of the size of Edmonton in those days. But the citizens were enthusiastic, and with commendable foresight carried the program through.

A portion of the equipment installed at the time was a series street lighting system, having a capacity of 75 lamps, whereby the street lights were operated from one point instead of turning on each one individually. This system was started with 53 lamps, and has extended from year to year. A list of the additions reveals the growth of the service — 1905, 53 lamps; 1906, 74; 1907, 80; 1908, 86; 1909, 146; 1910, 176; 1911, 209; 1912, 431; 1913, 895; 1914, 1341; 1915, 1499; 1916, 1514; 1917, 1524; 1918, 1509; 1919, 1515; 1920, 1550; 1921, 1606; 1922, 1716; 1923, 1821; 1924, 1876; 1925, 1917; 1926, 1960; 1927, 2016. The number of lamps can be added to as required.

Until taken over by the Town Council, the plant gave daylight service only, but there was a demand for better lighting in store basements, and other places of business, and it was decided by the municipality that a 24-hours' service should be given, and the industries and business houses encouraged to use electrical power. From that time, year by year, there has been a steady and consistent growth of the department, both in the number of customers, and in the electricity generated.

In order to supply the increasing demand, extension of the general distribution system was carried out, until the feeders from the power house became quite complicated and past the point of economical operation. This was apparent immediately after the war, but it was not considered advisable to commence the necessary changes to the distribution system until the period of financial depression had lifted.

In 1922 the 13,200 volt ring main feeder system was started, and the construction period was extended over a number of years, so that the financial burden would not bear too heavily upon any one particular year. So far as the feeder system is concerned, the work was completed in 1926. Substations have been built for the purpose of reducing the voltage from 13,200 to 2,300 volts, and by doing this it is possible for the line-men to work on the different wires leading from the substations to

## ELECTRIC LIGHT AND POWER DEPARTMENT

Year.	Capital Invest. Plant Equip.	K. W. Hours Sold.	Revenue.	Expenditure.	Surplus.	Meters in Service.	Power Service H.P. Connected.
1910	\$ 146,990.03	2,825,710	\$154,950.08	\$144,001.98	\$10,948.10	5,422	700
1911	199,520.22	3,544,610	209,917.66	184,968.12	24,949.54	6,432	1,125
1912	361,544.53	4,839,411	352,494.80	266,838.05	85,656.75	8,661	3,510
1913	650,703.31	8,572,741	690,556.32	612,972.96	77,583.36	11,425	4,603
1914	746,355.28	10,010,540	609,619.45	554,428.50	55,190.95	11,894	4,355
1915	754,723.75	8,464,621.	467,673.22	431,912.34	35,760.88	11,939	4,026
1916	756,568.29	8,653,648	494,039.79	429,250.97	64,788.82	12,117	4,267
1917	764,950.67	9,339,290	520,304.19	431,724.04	88,580.15	12,318	5,976
1918	778,966.89	9,818,579	538,709.81	451,338.08	87,371.73	12,991	5,811
1919	805,375.84	11,692,609	640,744.34	522,392.44	118,351.90	14,348	6,197
1920	814,066.09	13,168,893	611,472.90	571,749.22	39,723.68	15,283	7,009
1921	846,987.30	14,424,344	708,714.53	594,839.66	113,874.87	15,904	7,733
1922	949,528.16	14,894,975	726,842.46	608,213.75	118,628.71	16,513	7,774
1923	1,072,088.34	15,805,716	714,271.47	635,689.91	78,581.56	16,635	7,772
1924	1,065,255.50	16,585,861	733,066.24	657,113.60	125,952.64	17,044	7,921
1925	1,094,874.18	18,543,398	799,233.05	693,636.41	105,596.64	17,294	12,216
1926	1,116,918.07	20,639,899	849,188.97	725,950.54	123,238.43	17,786	12,459
1927	1,143,420.23	21,876,133	893,131.10	772,407.18	120,723.92	18,308	13,442
1928 8 Mos.	1,179,825.66	16,187,907	631,930.91	542,725.63	89,205.28	18,670	14,025

the residences of customers. The substations are equipped with automatic equipment, first to open the circuit should any abnormal condition arise, and secondly with regulators to maintain the voltage at the required pressure to give efficient service on each circuit. Where a considerable demand is required for industrial purposes an out-of-door structure is maintained. Care was taken to have the ring main feeder system built with ample capacity, so that efficient service, at a minimum cost, can be given to industrial plants in any part of the city. It is so flexible that additions can be made without changing any of the existing equipment.

Similar to all the utilities, control of the department is vested in the City Council and City Commissioners. Its operation calls for a staff organization consisting of superintendent, general foreman, meter department foreman, line foreman, wiring inspector, complaints and service inspector, street lighting foreman with two men, two line construction foremen with gangs of five and three men, four meter installers, four meter repairmen, seven meter readers, office manager and staff of 16.

For the period 1902-1907 the revenue of the department was \$280,428, and expenditure \$232,400; from 1908 to 1912, revenue totalled \$923,095.44, and expenditure \$818,412.97; 1913-1917, revenue \$2,782,192.97, expenditure, \$2,460,288.81; 1918-1922, revenue, \$3,226,484.04, expenditure, \$2,748,533.15; 1923-1927, revenue, \$4,038,890.83, expenditure, \$3,484,797.64. These figures include the items of debenture interest and depreciation, together with reserve funds.

Since its inception as a municipal undertaking the utility has shown a total profit of \$1,502,000, and has thus made its contribution to the general financial situation.

# Power Production

By Superintendent W. J. Cunningham,

This department of the utilities of the City takes care of the generation of the electrical energy required for the operation of all industrial establishments, domestic lighting, etc., street railway and street lighting. All power is produced by means of steam, using coal obtained in Edmonton and vicinity.

The Power Plant is situated adjacent to the river between 102nd Street and 105th Street. The original power house owned and operated by the City of Edmonton dates back to 1904, but prior to that time an electric lighting plant was placed in operation by a private company some time in the year 1891. This old plant was situated near the river behind the old brewery at the foot of what is now 101st Street.

The existing plant has been extended many times since 1907, and little of the original buildings remain. During the period of rapid expansion in Edmonton in the boom days of 1910 to 1914, the demand for lighting and power increased very rapidly, and as a consequence it was difficult for the power plant to keep pace with the requirements. In 1914 it was decided to build an entirely new plant, but at the commencement of the war, the contracts for this were cancelled.

In 1915 an agreement was made with an organization known as the Edmonton Power Co., Ltd. to obtain energy from a Hydro-Electric development at Rocky Rapids on the North Saskatchewan River. **Hydro-Electric Franchise** This projected development never materialized. From July, 1916, to September, 1919 the plant was leased to the Alliance Power Company. This Company operated the plant and sold energy in bulk to the City, the fixed charges being still paid by the City. This operating agreement was terminated by the Company on September 23rd, 1919, and the plant reverted to the City, and has been entirely operated by the Municipality since that date. No extensions or improvements were made to the plant from 1915 until 1921. Since that time a large amount of reconstruction and additions to the plant have been made and the generating facilities have kept pace with the rapidly increasing demand.

Probably owing to the fact that the first period of growth occurred during the years in which rapid development was taking place in the design of electrical machinery, a large amount of equipment was installed which quickly became obsolete. **Machinery Obsolete** In addition a large amount of money was invested in the Strathcona Power House which was subsequently scrapped, and the fixed charges assumed by the Power Department. In consequence the Department for many years has carried a heavy burden of capital charges on non-existent assets. During the last few years the endeavour of the management has been to reduce operating costs by the use of more efficient methods in the production of steam, and the addition of generating units and equipment to cope with the constantly increasing demand, and at the same time defer any major plant development as far as possible until the expiration of the old capital charges is in sight.

Annual production of energy by the plant now amounts to 42,000,000 kilowatt hours, and is increasing rapidly with the expansion which is now taking place in the industrial and domestic life of Edmonton. Perhaps the average citizen does not fully realize the very important part which their Power Plant takes in the life of the City. The life of the modern city is now so dependent upon the uninterrupted supply of 'power' as to make the Power Plant the heart of its daily work. Glance for





Main Floor at Power Plant, Showing Units.

a moment at the responsibilities held by the staff of the plant. The supply of water for all domestic, sanitary and fire purposes must be maintained without interruption for every minute of the day and every day of the year. The supply of energy must not fall for one second — the lighting of the homes, hospitals, public buildings, and streets are dependent upon it. The wheels of industry must be kept turning by the manifold applications of the electric motor, and transportation provided by the energy supplied to the street railway lines. In case of trouble arising in the complicated structure of producing and delivering energy, the first aim of the staff is to maintain and restore the service at no matter what cost.

The function of the Plant is the manufacture and production of electrical energy from the raw materials of coal and water, and like every other industrial product, in the cheapest possible way.

**Operation and Equipment** However, unlike many other industries, the most important factor in power production is reliability and continuity of service, and the Plant must function 24 hours a day, year in and year out.

Steam is produced by a boiler plant fired by coal obtained in Edmonton and surrounding districts, and consists of sixteen water tube boilers equipped with mechanical stokers. The total generating capacity of the turbine generators is 23,000 kilowatts. There has recently been added a 10,000 k.w. turbine generator, which was placed in operation on December 17th, 1927. This unit is an interesting engineering achievement, as it is the first turbine of its capacity on this continent operating at the high speed of 3,600 revolutions per minute. Included in the complete list of equipment at the plant there is now the 10,000 k.w. turbo-generator, installed in 1927, a 5,000 k.w. turbo-generator installed in 1921, 4,000 turbo-generator (1913), 2,000 k.w. turbo-generator (1911), 2,000 turbo-generator (1910). For the street railway power supply, one 750 k.w. engine generator (1912), and a 400 k.w. engine generator (1911), a total of 1,150 k.w. In addition for street railway power supply there are 5 motor generators of a capacity of 2,500 k.w. contained in the plant and at the sub-stations. The boiler plant consists of eight 478 horse power water tube boilers, and eight 402 horse power water tube boilers. The boilers are capable of evaporating approximately a maximum of 250,000 lbs. of steam per hour, which at the plant water rate will carry a load of 14,000 k.w. The demand in December, 1927, was 13,200 k.w. It should be noted that while the total installed generating capacity is 23,000 k.w., this amount does not represent the total effective capacity to meet the peak load demand. The maximum load which the plant will carry is limited by the steam producing capacity of the boilers.

For the benefit of the uninitiated a few words as to actual generation of the electrical energy will not be out of place. The energy is produced

**Generation and Distribution** when a conductor is moved across a magnetic field, and in this case the dynamo or generator is a mass of conductors or copper bars revolving in a magnetic field.

The steam turbine is directly coupled to an electrical generator. The energy of the steam impinging on the blades of the turbine produces rotation of the shaft. The turbine shaft is connected with the generator shaft which carries the magnetic field and the revolving of this field at high speed induces currents in the armature of the generator. The current generated is at a voltage or pressure of 2,300 volts. All the generators are connected by cable through switches to a structure termed a bus-bar. This consists of copper bars of large capacity, and all the current generated is delivered to these bus-bars, and is fed to the distribution system from this point. A portion of the load is transmitted to the outgoing feeders of the distribution system at the 2,300 voltage, but in order

to obtain economical transmission the majority of the current is stepped up to a voltage of 13,200. This is effected by a bank of transformers at the plant, capable of transforming a total of 6,000 k.w. Power for the street railway is generated and delivered quite independently from the remainder of the energy produced, and is delivered to the lines at a voltage of 550 continuous or direct current.

Coal is delivered to the plant in 50-ton railroad cars of the open type. It is unloaded by dumping into a hopper over which the railway trucks pass. Beneath the hopper is a crusher, which reduces the coal to a uniform size of about 2 in. cubes. It then feeds the coal on to a travelling apron conveyor which runs through a tunnel underground into the basement of the boiler room. The coal is then automatically loaded on to a bucket elevator which travels to the top of the building and across the entire length of the boiler room in a continuous belt. Coal bunkers with a capacity of 1,000 tons are placed over the boilers and the coal is discharged by an automatic trip into these bunkers by which it is fed by gravity spouts into the boiler furnaces.

Operation of the power plant, which includes the working of the power house, sub-stations, and the pumping and filtration plants, is carried on under the direction of one superintendent. The total number of men employed in these departments is approximately 80. While at the present time the total output of the department is more than twice that of 1914, the number of men employed at that time was about 130. The reduction in the number of staff has been effected by more economical methods in the production of steam and more modern equipment for generation. In regard to financial matters the plant has been making a surplus for many years, and in that connection during the last six or seven years the plant has not only returned a large annual surplus to the city, but has also provided out of revenue large reserves which have been expended in the re-conditioning of the plant and the installing of the new units.

## Water Pumping and Filtration

Water required for all purposes in the city of Edmonton is obtained from the North Saskatchewan River. The river provides an inexhaustible source, capable of supplying a city many times the population of Edmonton. This river, however, is subject to variation in flow, which is the cause of exceptionally high turbidity. Whenever high water occurs, a high degree of turbidity (turbidity is the expression of the amount of solids, sediments, clays, etc. contained in the water) is created by the caving in of clay cut banks and the washing down of debris on the river banks.

In consequence of this condition the treatment of the water for domestic and industrial purposes becomes a highly necessary and important



At Top — New Sedimentation Basin.

Below — Mechanical Clarifier.

factor in the delivery of water into the mains. In addition the question of possible contamination of the water supply is a most important factor and great attention is paid to this matter.

Two intake cribs are located in the main stream of the river. From these the water flows by gravity through two 36 inch pipes to a large concrete well chamber on the river bank opposite to the pumping station. The water is first pumped by so-called low-lift pumps, located in a large pit, about 40 feet deep, at the south end of the station. There are four of these pumps, with a total capacity equal to 45 million gallons per day. The pumps send the water to the filtration system, but before reaching the system, the water is first used in the main power plant for the purpose of condensing the steam used in the generating units. This operation consists of the water, passing through certain pipes, it is perfectly clean, and if anything improves the water rather than being any detriment. The water then flows into a mechanical clarifier basin. This clarifier consists of a specially designed steel frame carrying a series of scrapers which continuously revolves round the chamber. The purpose of the equipment is to remove the heavy solids and sediments. From the clarifier the water flows by gravity to a series of large agitator tanks, which, containing mechanical agitators revolving slowly in tanks, thoroughly mix the coagulant that is applied at this point. The material used is sulphate of alumina, and upon contact with water, this forms a substance termed aluminum hydrate. The water flows from the agitator tanks to a large stilling basin where the hydrate, having the property of attracting to itself the fine sediments, coagulates all the suspended solids, and deposits them on the bottom of the basin. By a flume the water passes into another basin where a further period of settlement takes place, after which it is ready for filtering.

Filters consist of sand and gravel beds, through which the water flows removing all traces of foreign matter, and also a large portion of the bacteria which is present in all raw water. After leaving the filters the water flows into two large clear water basins, which provide a certain amount of storage of filtered water. By means of a flume the water then reaches the pumping station, when by the use of large motor-driven pumps, it is forced into the mains of the city waterworks system.

Before, however, the water is dealt with by these pumps, known as the high-lift pumps, it receives a final treatment for sterilization of any bacteria organisms remaining in the water. This is achieved by the application of liquid chlorine in the form of a very small proportion of chlorine in accordance with the known amount of bacteria in the water. All water contains a certain number of harmless bacteria. A complete series of tests and analysis are continuously being made by the department for the purpose of ascertaining the number of bacteria contained in the raw and also the filtered water. In addition, for the purpose of making absolutely certain of the state of the water, the laboratory of the University of Alberta carries out daily tests of the water. By these means a complete check is kept at all times upon the purity of the water.

Owing to the fact that there are no elevations in the city of Edmonton, upon which reservoirs could be constructed to serve as storage for supply-

ing water to the different parts of the city, it is necessary that the pumps should operate every minute of the day. Total volume of the high-lift pumps at the present time consists of two motor-driven pumps delivering ten millions of gallons of water each during 24 hours, and one steam-driven pump delivering six million gallons during 24 hours. There is also in process of installation a new motor-driven pump of a capacity of twelve and a half million gallons per 24 hours. When this is completed the total capacity of the pumps will be sufficient to supply the needs of the city for all purposes for some time to come.



## POWER HOUSE AND PUMPING STATION

Year.	K.W.H. No. of Delivered.	Load Maximum K.W.	Consumed Coal Tons.	Lbs. of Coal per K.W.H. Generated	Total Cost of Operation & Renewals Fund per K.W.H.	Total Revenue.	Total Expenditure.	Total Surplus	Paid to City General Fund.	Allocated to or Drawn from Res. Fund.
1920	25,009,800	8,800	97,850	7.33	2.09c	\$575,780.52	\$564,119.22	\$ 11,661.30	\$ 2,223.01	- \$ 9,438.29
1921	26,941,700	9,100	95,667	6.67	1.76c	568,026.30	502,900.14	65,126.16	66,188.72	- 1,062.56
1922	28,984,700	9,700	85,094	5.56	1.61c	579,790.45	493,594.51	86,195.94	86,768.05	- 572.11
1923	29,578,200	9,400	86,275	5.55	1.63c	555,910.06	503,289.87	52,620.19	47,160.83	- 5,459.36
1924	31,854,900	10,600	84,939	5.1	1.43c	576,593.57	464,355.85	112,237.72	97,408.92	- 14,828.80
1925	34,286,300	11,800	87,498	4.86	1.34c	598,493.68	460,592.91	137,900.77	120,519.76	- 17,381.01
1926	35,898,700	12,000	88,764	4.74	1.33c	636,653.75	478,581.29	158,072.46	123,919.26	- 34,153.20
1927	38,148,300	13,200	95,016	4.72	1.29c	679,131.73	494,060.13	185,071.60	127,506.28	- 57,565.32

# Street Railway Department

By Superintendent W. J. Cunningham,

Radial railway operation by the city as a municipal undertaking began on November 9th, 1908, when the system consisted of twelve miles of track, the cars running from 95th Street and 111th Avenue, south on 95th Street to 106th Avenue, west on 106th Avenue to 97th Street, south to Jasper Avenue, and west to 116th Street. At the beginning of service only two cars were in operation, but in a very short time the number was increased to four. In the succeeding years to 1914 a great deal of construction work was carried out, and in that year the trackage reached a total of 52 miles, and the rolling stock comprised 87 cars, including sweepers, work cars, etc. The original car barns were built on 95th Street, but were found to be inadequate, and in 1913 the existing car shops were built just south of Alberta Avenue, and adjoining the Exhibition Grounds. The shops, however, were practically reconstructed in 1925.

## Began With Two Cars

During boom days when the city was growing very rapidly and its boundaries were extending in all directions, many street railway routes were constructed which should never have been undertaken, had it been possible at the time to persuade anyone in the city that its growth would stop and then decline. By reason of the very large area of Edmonton and its comparatively scattered population, the successful operation of the street railway has presented many difficulties. The maximum number of passengers carried in any one year was in 1913, when a total of 14,973,781 passengers were carried. During the war, when the population of the city declined quite rapidly, as a natural consequence the number of street railway passengers was also very much reduced. This stagnation in population was coupled with the competition offered by an increasing number of privately owned automobiles. However, in spite of the tremendous increase that has occurred in the number of automobiles in the city, the street railway passenger totals are again increasing, and last year, 1927, the number of passengers carried was 12,901,483. To illustrate the competition offered by the motor cars, it can be pointed out that whereas in 1913 there were probably not more than four or five hundred motor cars in the city, last year there were between seven and eight thousand. The street railway, unlike the other city utilities, no longer possesses any monopoly of business, but has to compete with other popular and mobile forms of transportation.

## Growth in Boom Times

In common with other businesses, the expenses of operation, due to large increases in the cost of material and wages, has increased by a very large percentage over that of pre-war costs. As an indication of what this means it can be stated that the costs of material are approximately 60 per cent. higher than in 1913. In contrast to this there is the fact, peculiar to the street railway industry, that unlike other forms of business activity, revenue has not taken an upward trend, and the present fare charged on the Edmonton street railway is only 25 per cent. higher than that in 1913. In that year the five cent fare was in vogue, and to-day the fare is 6¼ cents. As the result the margin between revenue and expenditure on the street railway has been much less marked than in other lines of business and the one has had a hard struggle to keep pace with the other. In spite of this, however, the street railway is showing signs of marked improvement, and it may confidently be predicted that in a short time the department will be showing a surplus over all expenses. It should be pointed out that for some years past the department, while showing an apparent deficit, has taken care of all operating and maintenance charges,

## High Cost of Operation



Street Railway Cars Crossing High Level Bridge.

together with the capital charges, and also has set aside a considerable sum for renewals and depreciation.

The aim and object in the operation of the department is to provide safe and convenient transportation at all times to all classes of the community. The maintenance of a proper time schedule, in operating street cars, is a very important factor, and it is sometimes very difficult, during bad weather and in face of the many obstructions that occur in the city streets, to adhere to the exact time schedule that has been laid down. Instructions given to employees of the department are that they shall do their utmost at all times to provide service for the patrons of the street railway. The lay-out of the city of Edmonton, with a very large area populated by a comparatively small number of people, has presented peculiar difficulties in the working of the street railway. The wide river valley, with its interchange of people from one side to the other, and the unpopulated area of the Hudson's Bay Reserve, which resulted in the spreading out of habitation to the city extremes, have been the cause of some very long hauls with correspondingly heavy expenses on these routes, which do not provide a paying load. An instance of this is the fact that on one route it is possible to travel for the distance of eight miles on the one fare.

With the increasing industrial activity that is now apparent in Edmonton, and the prospect of an increased population, the department expects to be in a better position to rehabilitate both the track work and the rolling stock. It can be mentioned that owing to causes already dwelt upon the department has not been in a position to purchase any new passenger cars since 1913, but during the last few years, a comparatively large program of re-conditioning existing cars has taken place, the cars being rebuilt and renovated in the shops of the department. It is anticipated that within a short time it will be possible to purchase some new cars, although those that have been rebuilt are equivalent to new cars, so far as the body work is concerned.

This year a commencement has been made of permanent reconstruction of the street railway tracks in the centre of the city, and it is the intention of the department to proceed with similar work in the down town area from year to year in the immediate future.

Members of the general public have probably little conception of the many activities of the department, including the inspection, maintenance, and reconditioning that is carried out at the car shops, and in this connection, the department is at all times pleased to show any citizens through the shops, so that they may gain some idea of the working of the street railway. The staff maintained by the department totals some 230 employees, in addition to the superintendent. Due to the introduction of the one-man cars, in which one employee combines the duties of motorman and conductor, it has been possible to effect a considerable reduction in the number of employees. It has been thoroughly proved in the majority of cities on the continent, that the one-man operated cars provides even safer and more convenient operation to the public than did the old type system, which included a conductor in addition to the motorman. One-man operation of cars has become universal throughout the continent.

At the present time street railways in all cities are in a process of transition from old methods and ideas in transportation facilities, and many improvements in the construction of cars tending to provide greater comfort to passengers, and smoother and more rapid operation are in process of development. The street car is still the only vehicle which can effectively deal with mass transportation, and the industry will undoubtedly keep pace with modern developments in the provision of a higher standard of service to its customers.

**STREET RAILWAY DEPARTMENT**

Year.	No. of Passengers.	Miles of Track, Single Track Basis.	Receipts Per Car Mile Cents.	Expenses Per Car Mile Cents.
1909 .....	2,160,135	12.0	30.0	34.6
1910 .....	3,690,839	19.5	27.5	33.2
1911 .....	6,296,824	28.0	29.8	33.6
1912 .....	11,250,400	30.2	36.0	38.9
1913 .....	14,973,781	52.6	33.2	42.7
1914 .....	13,938,098	53.9	31.04	41.2
1915 .....	10,658,215	53.9	25.8	32.7
1916 .....	10,669,375	53.9	25.5	31.7
1917 .....	10,086,213	53.9	26.2	35.0
1918 .....	9,909,529	54.1	25.8	33.0
1919 .....	11,779,466	54.1	32.3	35.2
1920 .....	12,371,090	56.0	36.9	46.8
1921 .....	12,790,738	56.0	36.6	38.8
1922 .....	12,914,896	56.0	33.9	34.1
1923 .....	12,339,465	56.0	31.5	32.9
1924 .....	12,355,889	56.0	30.5	32.0
1925 .....	12,588,475	56.0	31.3	33.2
1926 .....	12,388,636	56.0	31.2	32.6
1927 .....	12,901,483	56.0	32.3	33.6

# Telephone Department

By Superintendent R. Christie.

Twenty-three years ago, in 1904, the Edmonton Civic Administration entered the public telephone field, when they purchased the local telephone system for the purpose of operating it as a municipal utility, the price paid being \$17,000. The original plant was operated by the Edmonton District Telephone Co., owned and managed by the late Alex. Taylor. In those days it was necessary to turn the crank of the telephone in order to signal the operator, who completed the connection to the required party, the style of service being known as the magneto type. Naturally, this kind of service was very slow, and in a growing community was practically obsolete. The plant was very congested, the 500 or more telephones then in service, being as many as could conveniently be handled, and by reason of inadequate equipment, it was only with great difficulty that any new services could be connected. It therefore became necessary to create an entirely new system to supply the increasing demand for service.

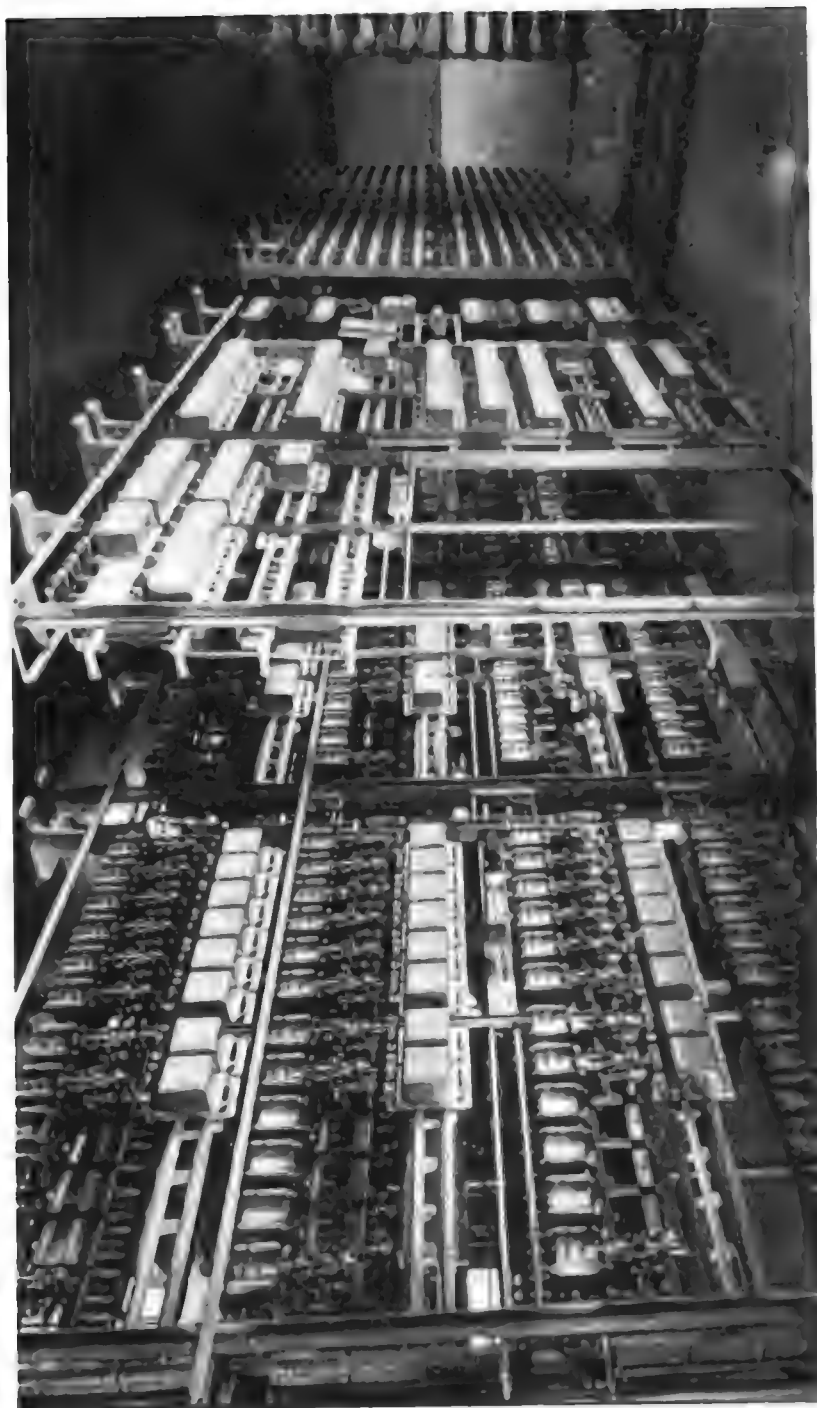
Investigation of various types of telephone equipment, both manual, and so-called automatic or machine switching systems, was carried out by the civic administration. Finally, they arrived at the decision that the Strowger automatic was the most modern and economical system of telephony. Acknowledgment must be made of the judgment and foresight exercised by Mr. J. A. McDougall, the then mayor, and his associates on the city council, in making their choice. They selected a system which has since gained an international reputation by reason of its effective and time-saving operation. What is more, Edmonton has been able to speak with pride of its telephones, which have always been kept abreast of the times. The initial cost of the Strowger equipment may be high, but in Edmonton's case it has been money well spent.

As a beginning 1500 lines of the Strowger three-wire equipment were erected, the installation being completed in 1908, when 800 subscribers were cut over from the old magneto switchboard. This automatic equipment was the first of its kind in the province of Alberta, and the second in the Dominion of Canada. During succeeding years the system was constantly enlarged by reason of increasing population and the consequent development of the city, there being an average increase of 700 telephones every year since 1908.

In 1913 two additional exchanges were built and cut into service. These exchanges were located in the north and west districts of the city and served the subscribers in their respective areas.

The Strathcona telephone plant was purchased from the Alberta Government for \$149,000.00 and it became a part of the Edmonton exchange network when the amalgamation of the two cities took place. Improved automatic equipment of the two-wire type was installed in a new main exchange building in the year 1921, when 1,000 lines of apparatus was added to the plant. During the latter part of 1926 the South Side (Strathcona) exchange was changed to the most modern two-wire type of automatic apparatus. A new fire-proof building was erected, and the installation, consisting of 2,200 lines of equipment, was completed in January 1927, when all subscribers were cut-over from the old three-wire automatic switchboard to the new two-wire automatic switchboard. It was not found nec-





Automatic Telephone Equipment at Main Station.

essary to obtain capital funds for the change of the South Side exchange plant as the department had sufficient reserve funds on hand to finance the complete work, which cost \$164,000.00. The automatic switching apparatus supplied at the original installation in 1908 was arranged on a 4-digit basis and could only serve a maximum of 9,000 lines. As the system began showing considerable growth, it was clearly seen that the 9,000 line maximum would soon be reached, so it became necessary to gradually change to a 5-digit basis with an ultimate maximum capacity of 99,000 lines.

For the purpose of giving a clearer conception of the extension of the utility, it will be well to make some comparisons as to the equipment in use in 1908 and to-day, twenty years later. At the original installation of the automatic type, there were placed in service 1500 line switches and 450 trunking and connector switches (mechanical operators). At the present time there are in use 13,120 line switches and 4,750 trunking and connector switches.

In 1905, when the city acquired the utility, there were 500 magneto telephones in active use. To-day the number has been increased to 15,034, a wonderful growth. With a population of 69,744, this gives a proportion of 21.5 telephones per 100 persons. In Montreal, with a population of 848,000, there are 150,681 telephones, giving a proportion of 17.8 per 100. Ottawa, with a population of 176,000, has 34,949 telephones, and a proportion of 19.9 per 100. Toronto, with a population of 640,000, has 163,744 telephones and a proportion of 25.6 per 100. In relation to the other cities Edmonton compares very favourably.

Telephones now in use in the city include 5,901 which are exclusively devoted to business purposes and listed as such, and 9,133 residential or house telephones. Out of this number 13,383 are served by the automatic equipment, and 1,651 are manual telephones. There are 87 private branch exchanges, four private automatic exchanges, and 168 public paystations.

Out-of-doors, the telephone line construction consists of lead-covered aerial and underground cables with a total length of 169 miles, as compared with 32 miles when cable was first installed in 1908. These lead-covered cables vary in size and contain copper conductors ranging from 50 wires to 1600 wires in each cable (one pair of copper conductors is required for each telephone in service). The total mileage of single copper wire in all of these cables amounts to 67,285 miles. If all the wires were joined together and extended as a single conductor, it would reach  $2\frac{3}{4}$  times around the earth.

Although automatic in operation almost as far as it is possible to take equipment of the kind, there has to be the human element to complete the scheme in everything mechanical. In this case the utility is served by a superintendent, assistant superintendent, maintenance foreman, switch chief, wire chief, installation foreman, cable and line foreman, chief operator with a staff of eleven girls. There is a commercial staff of 15, switch and telephone maintenance men number 26, and the installation and line construction men total 12. It may be pointed out that if the system was manually operated at least 100 more employees would be required.

In addition to its primary use the department serves the public in a variety of ways, the utility of which is denoted by the calls for service. An average of 8,000 "Time" calls are dealt with daily. In all matters pertaining to the city or of local interest "Information" does everything

possible to answer all queries and give the details required. In the case of election results and other matters of local or national interest, the department always co-operates with the newspapers in keeping the public informed.

Periodical traffic counts are taken to determine the peak load carried by the plant, and also to find the number of originating calls passing through the system. These observations show an average traffic of 180,000 calls daily which is equivalent to

<b>Future</b>	approximately 54,600,000 calls for an entire year of working days or an average of 15.7 calls per day from every telephone line in service.
<b>Development</b>	

Because of the increasing population and the improving business conditions now prevailing, the situation is such that plans have been prepared for the complete modernization of the telephone system in the near future. Beginning eighteen months ago with the complete change of all the system in the south side district it is now proposed, as the next step, to replace all the three-wire central office equipment and telephones in the main exchange area with the most modern automatic two-wire equipment to be obtained. It is hoped that by July, 1930, this change will have been completed, and the next step will then be to immediately change the north and west exchange districts, after which Edmonton will have the most modern and up to date equipment in Western Canada.

When the new main exchange building on the north side was opened for business it was generally regarded as a very handsome addition to the city's public buildings. Certainly, its general character and design are worthy both from the architectural point of view and that of utility in the housing of the department. When the developments noted above are carried out, it will also mean the completion of the building along the lines of the original plan, with its front and main entrance abutting on McDougall Avenue, assisting to give that thoroughfare an air of distinction, the creation of which is the aim of the city fathers.

When the new two-wire equipment has superseded the old three-wire system the capital debt of the department will not be greater than it is to-day, owing to the fact that a large portion of the telephone debt will be redeemed within the next five years. It will, therefore, be unnecessary to increase the present low rates for service which the citizens are now enjoying in Edmonton. Thus we will be in the enviable position of still securing the greatest amount of service for the least cost, which is the aim of municipal ownership.

**TELEPHONE DEPARTMENT**  
**COMPARATIVE UNIT COSTS & REVENUE — 1916 TO 1927.**

Year	Maintenance & Operation Per Phone	Fixed Charges Per Phone	Total Cost Per Phone	Average Revenue Per Phone	Surplus Per Phone
1916	\$7.89	\$19.15	\$27.04	\$28.20	\$1.16
1917	7.59	17.38	24.97	27.07	2.10
1918	9.17	16.83	26.00	29.05	3.05
1919	9.68	14.78	24.46	28.54	4.08
1920	11.92	15.61	27.53	32.52	4.99
1921	12.80	14.96	27.76	34.02	6.26
1922	12.79	15.05	27.84	35.18	7.34
1923	12.49	15.33	27.82	35.68	7.86
1924	12.09	15.42	27.51	36.81	9.30
1925	11.27	15.33	26.60	35.61	9.01
1926	11.55	15.08	26.64	34.98	8.34
1927	10.81	11.57	25.39	33.80	8.41

**TELEPHONE DEPARTMENT**  
**ANNUAL STATISTICS SINCE COMMENCEMENT**

Year	Total Investment	Revenue	Maintenance & Fixed Charges	Surplus or Deficit	Telephones In Service
1905		\$14,715.19	\$10,565.21	\$4,149.98	421
1906		25,952.59	18,457.18	7,495.41	578
1907	\$69,000.00	22,419.83	26,233.01	3,813.18 Def.	620
1908	223,302.07	29,609.22	25,377.77	4,231.45	1,400
1909	260,076.24	39,599.96	32,936.54	6,663.42	1,800
1910	313,716.41	52,299.55	43,212.61	9,086.94	2,368
1911	435,902.69	71,731.62	56,313.02	15,418.60	3,396
1912	833,390.44	101,138.81	96,814.18	4,324.63	4,983
1913	1,664,687.23	207,217.25	273,651.24	66,433.72 Def	8,900
1914	1,760,731.51	247,102.58	284,987.22	37,884.64 Def	8,923
1915	1,736,736.28	231,097.75	268,340.52	37,242.77 Def	7,691
1916	1,763,633.31	233,206.29	223,635.45	9,570.84	8,269
1917	1,796,456.64	256,988.69	237,103.21	19,885.48	9,495
1918	1,821,174.95	286,266.47	256,203.78	30,062.69	10,545
1919	1,898,509.20	333,059.35	285,406.00	47,653.35	11,670
1920	2,135,048.43	392,911.61	332,621.07	60,290.54	12,031
1921	2,252,276.61	429,471.19	349,906.20	79,564.99	12,635
1922	2,303,859.13	464,259.66	367,462.78	96,796.88	13,195
1923	2,317,074.26	470,691.53	367,012.88	103,678.65	13,191
1924	2,293,500.80	484,798.58	361,903.56	122,895.02	13,242
1925	2,301,382.58	477,310.57	356,319.26	120,991.31	13,655
1926	2,334,895.95	480,807.38	365,973.60	114,833.78	13,974
1927	2,855,481.45	483,485.50	363,182.19	120,303.31	14,709

## ESTIMATED RESULTS OF TELEPHONE DEPARTMENT FOR NEXT TEN YEARS

The following tabulation shows the estimated results of the operation of the Telephone Utility for the next ten years and allowance is made for the replacement of the old 3-wire plant with the more modern 2-wire equipment during this period. The estimate is of a conservative nature and it is expected that the surplus earnings over all charges will be greater than shown, without any increase of the present low rates for service.

Year	Gross Cap. Debt	Sink Fund Investment	Net Cap. Debt	Redemp- tions.	Est. Capital Requirements.	Est. Capital Charges.	Estimated Surplus.
1928	\$2,374,280.00	\$1,366,480.00	\$1,007,800.00	\$1,730.00	\$45,000.00	\$209,657.00	\$120,000.00
1929	2,266,550.00	1,345,946.00	920,604.00	157,730.00	50,000.00	213,176.00	125,000.00
1930	2,663,180.00	1,424,509.00	1,238,671.00	53,370.00	450,000.00	205,476.00	135,000.00
1931	2,557,450.00	1,344,272.00	1,213,178.00	105,730.00	50,000.00	240,476.00	100,000.00
1932	2,298,634.00	1,162,706.00	1,135,928.00	308,816.00	50,000.00	228,776.00	102,000.00
1933	1,279,589.00	230,891.00	1,048,698.00	1,069,045.00	50,000.00	217,176.00	115,000.00
1934	1,267,539.00	243,071.00	1,024,468.00	63,050.00	50,000.00	136,631.00	200,000.00
1935	1,265,809.00	318,071.00	947,738.00	1,730.00	50,000.00	135,631.00	200,000.00
1936	1,314,019.00	403,071.00	910,948.00	1,790.00	50,000.00	139,531.00	200,000.00
1937	1,362,144.00	493,071.00	869,073.00	1,875.00	50,000.00	143,431.00	195,000.00
1938	1,410,194.00	588,071.00	822,123.00	1,950.00	50,000.00	147,339.00	195,000.00

# Waterworks Department

By Superintendent J. W. Turner,

When, in 1902, the population of Edmonton had turned the 5,000 mark, it was found to be a matter of prime importance that an adequate water supply system should be installed.

## Early History

Prior to that time, the inhabitants had secured their water by means of the horse and tank wagon method; the water, in the first place, being obtained from the river. A limited number of residents had wells on their premises, while the few springs dotted about the town were also utilized. Fire protection was provided by a volunteer fire brigade, the equipment consisting of buckets and hand pumps.

There were several large underground wooden tanks in various sections of the town which were supposed to be kept filled with water from the river. These tanks often proved to be most disappointing, as in time of fire, when the need was greatest, they were frequently found to be empty.

Therefore it was a distinct forward step in Edmonton's civic progress when the first bylaw was passed authorizing the expenditure for the installation of a water and sewer system in the fall of the year 1902, the work to be carried out on the north side of the river and east of 102nd Street. The exact figures for the population at the time were 5,445. The actual work was carried out during the summer of 1903, and at the end of the year the system comprised 6 1-3rd miles of water-mains, five miles of sewer-mains, and two miles of water and sewer branch services. There were 103 water services and 55 hydrants.

This initial undertaking was the subject of much import to the citizens, and relatively, must have called for as great consideration as the spending of much larger sums of money now-a-days for the maintenance of our utilities and keeping them abreast of the times in the way of improvements. In the auditor's report for the first year there appears the following note: "The introduction and installation of a water and sewer system is a very serious financial undertaking to the ratepayers of this town."

There was no railroad into Edmonton in those days, the end of steel being at the old C.P.R. station at Strathcona, and the difficulties of construction were accentuated by the fact that all materials had to be hauled across the river. The revenue for the first year amounted to \$2,116.32, while the expenditure was \$3,147.24, showing a deficit of \$1,032.92 on the year's operations.

At this point a word should be said as to the actual source of Edmonton's water supply — the North Saskatchewan River. It speaks well for the care that has been exercised in dealing with the city's

**Purity of Water** water that the inhabitants have never suffered from any epidemic of disease directly traceable to water-borne infection. In common with other western cities, Edmonton has had no easy task in providing good and sufficient water. As the only originating sources capable of fulfilling requirements in contributing the necessary volume of water it has been found obligatory to utilize the magnificent rivers that drain our country and help to make it so picturesque. But in spite of their scenic charms these rivers are not ideal as a source of municipal water supply. Considerable variation in volume, at one time a rushing torrent, then again nothing but a slow-moving stream, lengthy periods of turbidity, and a certain amount of contamination from various sources, all prove serious detractors. These reasons have made it incumbent upon the city to install an expensive and comprehensive system of purification for the purpose of rendering the water innocuous before it passes into the mains. How successful the purification has been may be gauged from the fact that it is possible to make such a statement as that given above.



The water system on the South side of the river (then the town of Strathcona) was first installed in 1905. The first installation comprised 1 1-10th miles of mains, ranging in size from 6 to 12 inches. All these mains, except the feed mains to the pump station, were of wood, these being made in Vancouver from British Columbia fir.

**On the South Side**

Strathcona had its own fully equipped power house and pump station and the water supply was derived from large wells on the south bank of the river. Independent pump stations were maintained and operated on both sides of the river until the time of amalgamation which came into effect in 1911. Since that time the whole city has been supplied from the present pump station on the north bank of the Saskatchewan River, the South Side receiving its supply through a 20-inch submerged main under the river bed and two feed mains across 105th St. low level bridge.

From the time referred to above, the system has been extended each year until today it runs in all directions within the City limits, to the extent of 200 miles of mains with 15,243 branch services. These branch services vary in size from 3-4 inch for domestic use up to 6 and 8 inch for industrial and manufacturing establishments. There is a special 6-inch main extended in a north-easterly direction for a distance of some four miles beyond the city limits, which furnishes water for domestic purposes and fire protection to the provincial government's mental institute at Oliver.

**General Construction and Extension**

The work of extending the system, water-mains and branch services is carried out under contract and by the Department's own construction gang, after estimates have been submitted and the work authorized by the City Commissioners and City Council.

Today, water is being supplied through one 30-inch and two 20-inch feed mains to all that section north of the river and through one 12-inch and one 16-inch main to the South Side, and for all purposes there is an average consumption of 6½ to 8 millions imperial gallons every twenty-four hours.

The whole distribution system as at December 31st, 1927, represents a capital expenditure of \$3,044,600.83, the annual revenue of the Department being just over one-half million dollars, that is, \$555,962.12; while the expenditure for the year ending December 31st, last, amounted to \$489,637.14, thus producing a net surplus of \$66,324.98 on the year's operations, and this amount has been transferred, along with the surpluses of other utilities, to the general fund of the City.

Fire protection is provided through 912 fire hydrants which are scattered throughout the residential and business sections of the city, constant pressure being maintained from 90 to 110 pounds on the river flats and 45 to 50 lbs. per square inch on the levels above the hill. The water for fire fighting is raised from 80 pounds to 200 pounds by the portable motor equipment in the fire department where and whenever required. The old method of boosting fire pressure from the pumping station over our widely spread system was discontinued when the latest type of booster equipment was installed in the fire department some years ago, it having been found that the old method was wasteful and destructive. All fire hydrants are maintained, subject to constant inspection, by this Department, and kept in constant readiness. They are painted distinctive colors indicating the size of mains and branch connections through which they are supplied.

The pump station and filtration plant is operated in conjunction with the City's Power House, as there is an economical relationship between the operation of the pumping station and Power Plant, the details of which may be found in the article in this publication dealing with the City's Power Department. It may be of interest to mention that all water is measured through 20-inch and 30-inch Venturi meters carried out where the

**Pumping and Filtration Plant**

filtered water enters the distribution system at the pump station, thus providing a proper basis for an accounting system in connection with the inter-relationship of these utilities.

The Department has a fully equipped work shop and meter department where the work of cleaning, repairing and testing meters is done (under a united system whereby all water meters are read along with the electric light meters) of which there are now in service 11,372. The staff of this branch of the Department consists of a foreman and five men and two apprentices, whose duty it is to operate all water services and maintain the meter system throughout the whole city, there being 14,105 services to be taken care of. The general maintenance is carried out by a general foreman and a staff of 24 men whose duty it is to repair all leaks on mains and services, fire hydrants, valves and the general system throughout, which is composed of some 200 miles of mains varying in size from 4 inches to 30 inches in wood, steel and cast iron.

The Department is operated directly under the control of the City Council, City Commissioners, the General Superintendent with his Technical Assistant, Office Manager and Accountant, Inspector and a clerical staff of 12. It may be of interest to mention that there are 15,910 water accounts handled every month. The office is equipped with the latest type of bookkeeping machines which are capable of rendering the customer's account and giving an accurate summary of each day's business with a monthly financial balance.

Water is sold to all water consumers according to a definite tariff, which is graduated from 11c per 100 cubic feet to 23c per 100 cubic feet, with a minimum rate of \$1.00 on a metered service for domestic purposes. This minimum rate allows 360 cubic feet or 2.250 imperial gallons to the consumer with a 5 per cent. discount for prompt payment of account. These rates compare very favourably with all western cities where pumping and filtration methods are applied. From this minimum rate the consumption increases to meet the demand of the railways, packing plants and industrial concerns throughout the City. Rates vary according to volume of water used, and there are special rates for building and construction purposes.

The Waterworks system is designed not only to take care of the present requirements but to meet the growing need of the city in years to come.

The present system is capable of taking care of a population several times larger than that of the present, the object being to use such material and design that will tie-in without reconstruction to meet the requirements of the city when it has a population of 250,000. This, of course, will necessitate further capital expenditures as the years go by.

In addition to the surplus earned each year, as shown in the financial statement, there is a special depreciation and obsolescence fund provided out of revenue for the purpose of taking care of replacements of the older types of wood and steel mains and services. This reserve fund amounted to \$65,000.00 at the close of last year.

The 200 miles of mains and 16,000 services, as well as the various types of equipment which are laid from 7 to 8 feet below the surface of the streets and lanes, do not lend themselves to photographic illustrations, but the accompanying tabulation will give some idea of the extent of the present system, and the gradual development which has taken place throughout the years from its inception.

**WATERWORKS DEPARTMENT**  
**SHOWING GROWTH OF WATERWORKS DEPARTMENT FROM**  
**1903 TO 1927.**

Year	Revenue	Expenditure	Surplus or Deficit	Water Services	Mls. of Mains	No of Hyd'ts.	Av. Daily Consumpt.
1903 (6 mo.)	\$ 2,116.32	\$ 3,147.24	Def. \$1,030.92	108	6.33	50	
1904	13,145.96	12,718.96	Surp. 427.00	225	8.08	60	
1905	23,414.53	27,873.71	Def. 4,459.18	405	15.00	101	
1906	37,498.19	42,530.40	Def. 5,032.21	857	22.36	102	Prior to Amalga- mation
1907 (11 mo.)	55,444.16	42,146.85	Surp. 10,977.32	1,925	39.43	160	
1908	49,633.67	55,787.29	Def. 6,153.62	2,520	48.79	200	
1909	59,734.96	84,342.00	Def. 24,607.04	3,120	62.38	242	
1910	76,167.96	85,659.79	Def. 9,491.83	3,824	70.14	258	(Gals.)
1911	117,768.89	136,603.02	Def. 18,505.86	4,736	79.92	287	2,150,000
1912	217,281.88	220,346.21	Def. 3,064.33	7,219	96.75	498	3,290,000
1913	328,577.66	339,001.05	Def. 10,423.39	9,275	128.01	648	3,773,000
1914 (14 mo.)	362,534.96	318,657.31	Surp. 43,877.65	10,533	165.88	729	3,750,000
1915	343,094.12	348,844.10	Def. 5,749.98	10,533	164.18	782	4,300,000
1916	370,292.58	345,932.54	Surp. 24,410.04	10,698	164.80	797	4,226,000
1917	368,868.13	330,068.40	Surp. 38,189.75	10,829	164.865	797	4,886,000
1918	376,829.82	336,257.23	Surp. 40,572.59	10,978	165.046	798	5,096,000
1919	401,812.30	352,924.58	Surp. 48,475.17	11,294	165.232	803	4,968,000
1920	429,111.36	418,120.52	Surp. 10,990.84	11,729	167.557	813	6,163,000
1921	463,106.31	420,605.47	Surp. 42,500.84	12,208	171.775	824	6,180,000
1922	502,602.96	455,788.56	Surp. 46,814.40	13,331	180.24	858	6,698,000
1923	497,020.86	442,470.90	Surp. 54,549.96	13,892	184.76	877	5,364,000
1924	532,611.21	467,584.61	Surp. 65,026.60	14,294	186.47	888	5,504,000
1925	534,595.01	477,963.82	Surp. 56,631.25	14,777	191.94	895	6,330,000
1926	549,237.79	475,288.83	Surp. 73,948.96	15,248	194.48	910	6,038,000
1927	555,962.12	489,637.14	Surp. 66,324.98	15,686	196.12	918	6,176,000

The following Pages are  
devoted to a  
Financial Analysis at a Glance  
by City Comptroller  
J. Hodgson

# **COMPARATIVE SUMMARY OF NET RESULTS OF OPERATION OF CIVIC UTILITIES FOR YEARS 1923-1927**

## **1. ELECTRIC LIGHT & POWER—**

	1923	1924	1925	1926	1927
Gross Earnings ..	\$714,271.47	\$783,066.24	\$799,233.05	\$849,188.97	\$893,131.10
Expenditures:					
Cap. and Deprn.					
Charges .....	\$ 94,262.84	\$ 99,926.85	\$ 96,795.54	\$ 98,937.99	\$ 99,620.06
Maintenance ...	53,065.93	52,772.17	50,065.91	36,025.45	36,521.13
Operation .....	488,360.14	504,414.58	546,774.96	590,987.10	636,266.00
	\$635,689.91	\$657,113.60	\$693,636.41	\$725,950.54	\$772,407.18
Net Surplus ...	\$ 78,581.56	\$125,952.64	\$105,596.64	\$123,238.43	\$120,723.92

Total Accumulated Net Surplus to December 31st, 1927.—\$1,504,227.85.

## **2. POWER HOUSE—**

Gross Earnings	\$712,072.69	\$750,927.32	\$786,267.52	\$815,772.88	\$862,214.98
Expenditures:					
Cap. and Deprn.					
Charges .....	\$195,371.36	\$195,878.34	\$192,029.01	\$192,029.01	\$190,875.81
Maintenance ...	96,876.95	71,867.10	84,095.42	116,492.02	149,527.42
Operation .....	398,549.26	373,833.98	368,935.31	369,777.49	377,699.53
	\$690,797.57	\$641,579.42	\$645,059.74	\$678,298.52	\$718,102.76
Net Surplus ...	\$ 21,275.12	\$109,347.90	\$141,207.78	\$137,474.36	\$144,112.22

Total Accumulated Net Surplus to December 31st, 1927.—\$1,085,612.00.

## **3. STREET RAILWAY—**

Gross Earnings	\$743,784.71	\$743,028.93	\$755,033.37	\$748,426.18	\$776,147.86
Expenditures:					
Cap. and Deprn.					
Charges .....	\$262,872.38	\$263,580.13	\$272,376.96	\$267,376.96	\$270,376.96
Maintenance ...	135,516.73	133,974.89	151,489.15	141,380.69	151,023.06
Operation .....	378,202.60	381,289.96	377,921.00	373,016.98	386,374.70
	\$776,590.71	\$778,844.98	\$801,787.11	\$781,774.63	\$807,774.72
Net Deficit ....	\$ 32,806.00	\$ 35,816.05	\$ 46,753.74	\$ 33,348.45	\$ 31,626.86

Total Accumulated Net Deficit to December 31st, 1927.—\$1,489,418.14.

## **4. TELEPHONE—**

Gross Earnings ..	\$470,691.53	\$484,798.58	\$477,310.57	\$480,807.38	\$483,485.50
Expenditures:					
Cap. and Deprn.					
Charges .....	\$202,255.13	\$203,124.59	\$205,540.77	\$207,263.80	\$208,627.92
Maintenance ...	77,310.63	78,193.83	77,836.27	83,696.21	77,739.81
Operation .....	87,447.12	80,685.14	73,142.22	75,013.59	76,814.46
	\$367,012.88	\$361,903.56	\$356,319.26	\$365,973.60	\$363,182.19
Net Surplus ...	\$103,678.65	\$122,895.02	\$120,991.31	\$114,833.78	\$120,303.31

Total Accumulated Net Surplus to December 31st, 1927.—\$875,798.88.

# MUNICIPAL UTILITIES, 1928

35

## WATERWORKS—

	1923	1924	1925	1926	1927
Gross Earnings ..	\$497,020.86	\$532,611.21	\$534,595.07	\$549,237.79	\$555,962.12
Expenditures:					
Cap. and Deprn.					
Charges .....	\$180,523.25	\$194,042.58	\$196,842.69	\$200,758.20	\$211,522.79
Maintenance ..	54,603.59	50,612.84	46,094.84	48,611.53	43,482.58
Operation .....	207,344.06	222,929.14	235,026.29	225,919.10	234,631.77
	\$442,470.90	\$467,584.61	\$477,963.82	\$475,288.83	\$489,637.14
Net Surplus ...	\$ 54,549.96	\$ 65,026.60	\$ 56,631.25	\$ 73,948.96	\$ 66,324.98
Total Accumulated Net Surplus to December 31st, 1927.—\$542,278.55.					

## Recapitulation of Foregoing Net Results

### Surpluses—

	1923	1924	1925	1926	1927
Elec. Light & Power \$	78,581.56	\$126,952.64	\$105,696.64	\$123,238.43	\$120,723.92
Power House .....	21,275.12	109,347.90	141,207.78	137,474.36	144,112.22
Telephone .....	103,678.55	122,895.02	120,991.31	114,833.78	120,303.31
Waterworks .....	54,549.96	65,026.60	56,631.25	73,948.96	66,324.98
	\$258,085.29	\$423,222.16	\$424,426.98	\$449,495.53	\$451,464.43

### Deduct Deficit—

Street Railway .....	32,806.00	35,816.05	46,753.74	33,348.45	31,626.86
	\$225,279.29	\$387,406.11	\$377,673.24	\$416,147.08	\$419,837.57

Total Accumulated Net Surplus to December 31st, 1927.—\$2,518,499.74.

## NET RESULTS 1921 - 1927

	Net Surplus	Equivalent Reduction in Taxation—Mills
1921 .....	\$261,579.55	3.26
1922 .....	349,806.84	5.56
1923 .....	225,279.29	3.64
1924 .....	387,406.11	6.34
1925 .....	377,673.24	6.31
1926 .....	416,147.08	7.07
1927 .....	419,837.57	7.09
1928 .....		8.00 approx.

Certified Correct,

J. HODGSON,  
City Comptroller.

# STATEMENT SHOWING REDUCTION IN ANNUAL DEBENTURE CHARGES FROM 1928 TO FINAL MATURITY

Year.	Elec. Light	Power House.	Street Railway.	Telephone.	Waterworks.	Total Deb. Charges each year.	Reduction each year.	Total Reduction from 1928 to final maturity.	Year.
1928	\$ 89,157.57	\$ 183,165.55	\$ 232,161.19	\$ 180,627.51	\$ 193,321.86	\$ 883,433.68	\$ 9,625.27	..... 37	1928
1929	85,707.14	186,801.43	227,419.24	180,558.64	193,321.86	873,808.31	5,536.25	61,161.62	1929
1930	81,644.04	164,830.59	214,629.67	168,748.81	192,418.95	822,272.06	39,277.33	100,439.55	1930
1931	79,386.76	152,076.97	195,028.98	164,760.59	191,740.83	782,394.13	48,002.95	148,442.50	1931
1932	77,282.98	128,718.51	180,392.10	158,856.76	191,740.83	734,391.18	128,370.32	278,812.82	1932
1933	72,559.25	107,658.11	116,833.60	133,668.64	170,905.26	606,620.86	263,300.41	540,113.23	1933
1934	29,753.60	48,096.75	38,677.81	51,959.96	174,832.33	343,320.45	13,851.78	553,965.01	1934
1935	29,753.60	48,096.75	29,835.36	46,960.63	174,832.33	329,488.67	93.72	554,058.73	1935
1936	29,753.60	48,096.75	29,835.36	46,856.91	174,832.33	329,374.95	97.95	554,156.68	1936
1937	29,753.60	48,096.75	29,835.36	46,758.96	174,832.33	329,277.00	93.72	554,259.05	1937
1938	29,753.60	48,096.75	29,835.36	46,656.59	174,832.33	329,179.15	102.37	554,361.42	1938
1939	21,970.07	48,096.75	29,835.36	46,549.54	174,832.33	321,284.15	7,890.48	562,149.53	1939
1940	21,039.57	48,096.75	29,835.36	23,075.20	170,570.08	292,616.96	28,667.19	590,816.72	1940
1941	20,439.06	48,096.75	26,566.83	22,958.39	170,570.08	288,631.11	3,985.85	394,802.57	1941
1942	20,439.06	33,819.24	23,298.30	22,836.33	170,570.08	270,963.01	17,668.10	612,470.67	1942
1943	20,439.06	33,819.24	23,298.30	22,708.78	169,323.72	269,589.11	1,393.90	613,844.57	1943
1944	20,439.06	33,819.24	23,298.30	22,575.49	169,323.72	269,455.82	133.29	613,977.86	1944
1945	20,439.06	33,020.07	23,298.30	20,733.17	168,235.11	265,725.71	3,730.11	617,707.97	1945
1946	16,806.25	33,020.07	23,298.30	20,587.69	168,235.11	261,947.42	3,778.29	621,486.26	1946
1947	16,124.19	33,020.07	23,298.30	19,223.57	165,067.38	256,733.51	5,213.91	626,700.17	1947
1948	16,124.19	33,020.07	19,893.31	18,193.43	158,561.78	255,843.47	20,890.04	647,590.21	1948
1949	16,124.19	22,313.14	11,019.58	15,862.30	147,663.77	212,982.98	22,860.49	670,450.70	1949
1950	16,124.19	22,313.14	11,019.58	15,862.30	139,833.91	205,154.12	7,928.85	678,279.55	1950
1951	16,124.19	22,313.14	11,019.58	15,862.30	130,724.34	197,945.27	17,908.85	695,498.41	1951
1952	14,566.67	21,924.21	2,921.30	15,862.20	121,570.80	175,865.28	10,679.99	705,568.40	1952
1953	11,320.69	8,540.19	1,668.13	15,862.20	109,932.70	135,913.40	40,951.83	747,520.28	1953
1954	6,094.85	2,857.80	Nil	4,451.60	109,932.70	135,913.40	56,234.94	803,755.22	1954
1955	Nil	2,557.80	Nil	Nil	16,543.42	19,107.22	60,571.24	864,326.46	1955
1956	Nil	2,557.80	Nil	Nil	16,543.42	19,107.22	12,743.18	877,069.64	1956
1957	Nil	2,557.80	Nil	Nil	6,364.04	6,364.04	3,488.57	880,558.21	1957
1958	Nil	2,557.80	Nil	Nil	2,875.47	2,875.47	.....	880,558.21	1958
1959	Nil	2,557.80	Nil	Nil	2,875.47	2,875.47	.....	880,558.21	1959
1960	Nil	2,557.80	Nil	Nil	2,875.47	2,875.47	.....	880,558.21	1960
1961	Nil	2,557.80	Nil	Nil	2,875.47	2,875.47	.....	880,558.21	1961
1962	Nil	2,557.80	Nil	Nil	2,875.47	2,875.47	.....	880,558.21	1962
1963	Nil	2,557.80	Nil	Nil	2,875.47	2,875.47	.....	880,558.21	1963
1964	Nil	2,557.80	Nil	Nil	2,875.47	2,875.47	.....	880,558.21	1964
1965	Nil	2,557.80	Nil	Nil	2,875.47	2,875.47	.....	883,433.68	1965

Certified correct,

J. Hobson.

City Comptroller.

# CITY OF EDMONTON CIVIC UTILITIES

## COMPARATIVE SUMMARY OF NET RESULTS TO 31st DEC., 1927

Year	ELECTRIC LIGHT		POWER HOUSE		STREET RAILWAY	TELEPHONE		WATERWORKS		COMBINED		NET		Year
	Deficit	Surplus	Deficit	Surplus	Deficit	Deficit	Surplus	Deficit	Surplus	Deficits	Surpluses	Deficit	Surplus	
1902	.....	\$ 3,069.65	.....	.....	.....	.....	.....	.....	.....	.....	\$3,069.65	.....	\$3,069.65	1902
1903	.....	2,131.75	.....	.....	.....	.....	.....	\$ 1,030.92	.....	\$1,030.92	2,131.75	.....	1,100.83	1903
1904	.....	4,148.39	.....	.....	.....	.....	.....	.....	\$ 427.00	.....	4,575.39	.....	4,575.39	1904
1905	.....	9,092.90	.....	.....	.....	.....	\$ 4,149.98	1,838.80	.....	1,838.80	13,242.88	.....	11,404.08	1905
1906	.....	8,226.71	.....	.....	.....	.....	3,345.43	573.03	.....	573.03	11,572.14	.....	10,999.11	1906
1907	.....	18,927.74	.....	.....	.....	\$3,813.18	.....	.....	10,977.32	3,813.18	29,905.06	.....	26,091.88	1907
1908	.....	3,417.39	.....	.....	.....	.....	4,231.45	6,153.62	.....	6,153.62	7,648.84	.....	1,495.22	1908
1909	20,289.31	.....	.....	.....	\$9,484.64	.....	6,663.42	24,607.04	.....	54,380.99	6,663.42	\$47,717.57	.....	1909
1910	.....	10,948.10	.....	.....	37,288.52	.....	3,863.09	9,491.83	.....	46,780.35	14,811.19	31,969.16	.....	1910
1911	.....	24,949.54	.....	.....	47,923.57	.....	9,708.58	18,505.86	.....	66,429.43	34,658.12	31,771.31	.....	1911
1912	.....	85,656.75	.....	13,311.60	46,562.40	.....	2,593.25	.....	3,064.33	52,219.98	98,968.35	.....	46,748.37	1912
1913	.....	77,583.36	.....	160,828.25	144,809.87	47,310.71	.....	10,423.39	.....	202,543.97	238,411.61	.....	35,867.64	1913
1914	.....	55,190.95	.....	92,817.10	146,300.99	13,945.53	.....	.....	43,877.65	160,246.52	191,885.70	.....	31,639.18	1914
1915	.....	35,760.88	.....	66,249.64	135,758.71	9,067.84	.....	5,749.98	.....	150,576.53	102,010.52	48,566.01	.....	1915
1916	.....	64,788.82	(6 months)	39,430.71	119,597.66	.....	3,611.44	.....	24,410.04	119,597.66	132,241.01	.....	12,643.35	1916
1917	.....	88,580.15	Alliance Power Co.	.....	163,731.94	.....	19,885.48	.....	38,189.75	163,731.94	146,655.38	17,076.56	.....	1917
1918	.....	87,371.73	Alliance Power Co	.....	143,732.11	.....	30,062.69	.....	40,572.59	143,732.11	158,007.01	.....	14,274.90	1918
1919	.....	118,351.90	7,657.74	.....	59,674.85	.....	47,653.35	.....	48,475.17	67,332.59	214,480.42	.....	147,147.83	1919
1920	.....	113,874.87	.....	.....	200,191.82	.....	60,290.54	.....	10,990.84	200,191.82	111,005.06	89,186.76	.....	1920
1921	.....	39,723.68	.....	74,172.15	48,533.30	.....	79,564.99	.....	42,500.84	48,533.30	310,112.85	.....	261,579.55	1921
1922	.....	118,628.71	.....	93,043.51	5,476.66	.....	96,796.88	.....	46,814.40	5,476.66	355,283.50	.....	349,806.84	1922
1923	.....	78,581.56	.....	21,275.12	32,806.00	.....	103,678.65	.....	54,549.96	32,806.00	258,085.29	.....	225,279.29	1923
1924	.....	125,952.64	.....	109,347.90	35,816.05	.....	122,895.02	.....	65,026.60	35,816.05	423,222.16	.....	387,406.11	1924
1925	.....	105,596.64	.....	141,207.78	46,753.74	.....	120,991.31	.....	56,631.25	46,753.74	424,426.98	.....	377,673.24	1925
1926	.....	123,238.43	.....	137,474.36	33,348.45	.....	114,833.78	.....	73,948.96	33,348.45	449,495.53	.....	416,147.08	1926
1927	.....	120,723.92	.....	144,112.22	31,626.86	.....	120,303.31	.....	66,324.98	31,626.86	451,464.43	.....	419,837.57	1927
\$20,289.31		\$1,524,517.16	\$7,657.74	\$1,093,270.34	\$1,489,418.14	\$76,730.51	\$952,529.39	\$81,438.80	\$623,717.35	\$1,675,534.50	\$4,194,034.24	\$266,287.37	\$2,784,787.11	
NET		\$1,504,227.85					NET	\$875,798.88	NET	\$542,278.55	NET	\$2,518,499.74	NET	\$2,518,499.74
			NET	\$1,085,612.60										

\$2,237,729.68 of the net total of \$2,518,499.74 has been earned during the last seven years. In addition to the above surplus of \$2,518,499.74, the Departments have laid aside a sum of \$1,125,000.00 as a reserve for betterments.

Certified Correct,

J. HONGSON,

City Comptroller.

October 1st, 1928.





TABLE SHOWING MATURITY OF UTILITIES DEBENTURE DEBT OUTSTANDING AS AT  
DECEMBER 31, 1927.

	Electric Light	Power House	Street Railway	Telephone	Waterworks	Total	
1928	\$ 41,256.12	\$ 16,310.55	.....	.....	.....	.....	1928
1929	49,133.33	272,046.68	\$222,293.33	\$154,540.00	\$12,000.00	\$57,566.67	1929
1930	57,960.00	164,146.67	250,280.00	52,000.00	9,012.50	710,013.32	1930
1931	.....	272,162.70	26,470.63	103,026.67	.....	533,399.17	1931
1932	34,084.60	232,380.26	447,369.75	250,146.68	5,840.01	401,860.00	1932
1933	478,272.06	463,821.59	1,101,658.91	854,643.84	20,774.35	970,431.30	1933
1934	97,000.00	.....	76,000.00	61,320.00	.....	2,919,170.75	1934
1935	.....	.....	.....	.....	.....	233,320.00	1935
1936	.....	.....	.....	.....	.....	.....	1936
1937	.....	.....	.....	.....	.....	.....	1937
1938	.....	.....	.....	.....	.....	.....	1938
1939	15,495.00	.....	.....	260,000.00	.....	275,495.00	1939
1940	10,000.00	.....	.....	.....	.....	10,000.00	1940
1941	44,860.00	309,740.00	93,386.67	.....	696,333.33	1,143,320.00	1941
1942	.....	.....	.....	.....	59,000.00	59,000.00	1942
1943	.....	.....	.....	.....	30,000.00	30,000.00	1943
1944	71,500.00	15,000.00	.....	20,000.00	13,000.00	119,500.00	1944
1945	.....	.....	.....	.....	.....	.....	1945
1946	8,500.00	.....	.....	17,000.00	.....	25,000.00	1946
1947	110,317.22	329,718.33	537,530.19	270,846.66	242,072.14	1,490,484.54	1947
1948	.....	12,114.27	153,186.67	37,080.00	174,259.07	381,640.01	1948
1949	.....	.....	.....	.....	145,969.97	145,969.97	1949
1950	.....	.....	75,593.34	.....	169,540.00	245,133.34	1950
1951	.....	1,946.67	.....	.....	138,226.67	140,173.34	1951
1952	46,622.64	191,059.83	.....	151,416.09	406,548.51	795,647.07	1952
1953	74,600.00	85,400.00	25,793.34	54,506.57	609,180.00	849,480.01	1953
1954	.....	.....	.....	.....	.....	.....	1954
1955	.....	.....	.....	.....	.....	.....	1955
1956	.....	.....	.....	.....	118,300.00	118,300.00	1956
1957	.....	.....	.....	.....	56,825.00	56,825.00	1957
1958	.....	.....	.....	.....	56,825.00	56,825.00	1958
1959	.....	.....	.....	.....	.....	.....	1959
1960	.....	.....	.....	.....	.....	.....	1960
1961	.....	.....	.....	.....	.....	.....	1961
1962	.....	.....	.....	.....	.....	.....	1962
1963	.....	.....	.....	.....	.....	.....	1963
1964	.....	.....	.....	.....	45,133.00	45,133.00	1964
Payable in Installments	\$1,139,600.97	\$2,366,857.53	\$3,014,162.33	\$2,286,526.61	\$2,951,614.55	\$11,757,762.49	
		50,941.16	34,637.78	44,483.43	72,510.79	202,573.15	
	\$1,139,600.97	\$2,416,798.68	\$3,048,800.61	\$2,331,010.04	\$3,024,126.34	\$11,960,335.64	

Certified correct,  
J. Hoverson, City Comptroller.

## COMBINED BALANCE SHEET OF CIVIC UTILITIES AS AT 31st DECEMBER, 1927

## ASSETS

	Light	Power	St. Rly.	Phone	Water	Total
<b>CAPITAL--</b>						
Plant and Equipment .....	\$1,143,420.00	\$2,448,335.00	\$3,025,267.00	\$2,355,481.00	\$3,044,601.00	\$12,017,604.04
Less Depreciation provided ...	605,196.00	1,349,302.00	1,853,846.00	1,242,181.00	559,579.00	5,609,904.00
	538,224.00	1,099,533.00	1,171,620.00	1,113,301.00	2,485,022.00	6,407,700.00
		1,022.00	37,896.00		4,305.00	43,223.00
Unexpended Capital Funds ...	538,224.00	1,100,555.00	1,209,516.00	1,113,301.00	2,489,327.00	6,450,923.00
<b>CURRENT--</b>						
Imprest Cash .....	50.00		850.00	100.00	25.00	1,025.00
Accounts Receivable .....	45,314.00	915.00	1,729.00	2,380.00	28,968.00	216,539.00
Inventories, stores & loose tools	34,369.00	39,436.00	34,072.00	73,872.00	34,790.00	216,539.00
City of Edmonton, Cur. a/c...	260,959.00		143,939.00	108,048.00	54,404.00	567,350.00
Coal Stock .....		13,944.00				13,944.00
Equipment 10,000 K.W. unit ..		141,986.00				141,986.00
Renewals suspense .....		3,919.00				3,919.00
Ticket advances to conductors			6,741.00			6,741.00
Foreign and mutilated coins..			107.00			107.00
Buildings and Equipment ....				178,987.00		178,987.00
	340,692.00	200,200.00	187,438.00	363,387.00	118,187.00	1,209,904.00
\$ 878,916.00	\$1,300,755.00	\$1,396,954.00	\$1,476,688.00	\$2,607,514.00		\$7,660,827.00

# MUNICIPAL UTILITIES, 1928

39

## LIABILITIES

### CAPITAL—

	Light	Power	St. Rly.	Phone	Water	Total
Debentures issued .....	\$1,139,601.00	\$2,416,799.00	\$3,048,801.00	\$2,331,010.00	\$3,024,125.00	\$11,360,336.00
Deduct sinking fund invest's.	605,196.00	1,324,914.00	1,847,822.00	1,238,509.00	534,798.00	5,551,239.00
Pending capitalization .....	534,405.00	1,091,885.00	1,200,979.00	1,092,501.00	2,489,327.00	6,409,097.00
S. F. Res. applicable to land ..	3,819.00	8,670.00	8,537.00	3,955.00		7,774.00
	538,224.00	1,100,555.00	1,209,516.00	1,113,301.00	2,489,317.00	6,450,923.00
CURRENT—						
Consumers' guarantee deposits	83,064.00			2,361.00	28,191.00	113,616.00
Reserve for renewals .....	248,159.00		168,172.00	178,134.00	89,996.00	684,461.00
Reserve for claims .....	9,469.00		10,000.00			19,469.00
Equipment reserve .....		141,986.00		178,987.00		320,973.00
City of Edmonton current a/c.		58,214.00				58,214.00
Outstanding tickets .....			1,000.00			1,000.00
Ticket advance suspense .....			6,741.00			6,741.00
Uniform and overcoats .....			1,525.00			1,525.00
Rentals paid in advance .....				3,905.00		3,905.00
	340,692.00	200,200.00	187,438.00	363,387.00	118,187.00	1,209,904.00
\$ 878,916.00	\$1,300,755.00	\$1,396,954.00	\$1,476,688.00	\$2,607,513.00		\$7,660,827.00

Certified Correct,  
J. Hodgeson,  
City Comptroller.



